

4. (Amended) A method including:

detecting a thoracic impedance signal associated with a portion of a subject's thorax; and

providing a therapy to the subject's heart based at least in part on the detected thoracic

a 2
impedance, including [The method of claim 1, in which providing the therapy to the subject's heart includes] increasing a rate of pacing stimuli based at least in part on an increase in the baseline portion of the thoracic impedance.

5. (Amended) The method of claim [1] 2, further including detecting a motion of the subject and providing the therapy to the subject's heart based at least in part on the detected motion of the subject.

6. (Amended) The method of claim [1] 2, further including detecting a breathing of the subject and providing the therapy to the subject's heart based at least in part on the detected breathing.

8. (Amended) The method of claim [1] 2, in which providing the therapy to the subject's heart includes providing a therapy from the group consisting essentially of:

J

- (a) increasing the subject's heart rate to a predetermined fixed value in response to an increase in detected thoracic impedance at a frequency associated with a fluid shift away from the thorax;
- (b) increasing the subject's heart rate by a predetermined fixed value in response to an increase in detected thoracic impedance at a frequency associated with a fluid shift away from the thorax;
- (c) adjusting an applied energy for modifying a heart rate or contractility in response to an increase in detected thoracic impedance at a frequency associated with a fluid shift away from the thorax; and
- (d) providing a drug to the subject in response to an increase in detected thoracic impedance at a frequency associated with fluid shift away from the thorax.

18. (Amended) A cardiac rhythm management system, including:
first and second electrodes configured for association with a portion of a subject's thorax;
a thoracic signal detection module, coupled to the first and second electrodes;
third and fourth electrodes configured for association with a portion of a subject's heart;
a pacing therapy output module, coupled to the third and fourth electrodes; and
a pacing stimuli rate controller, coupled to the thoracic signal detection module for
receiving a thoracic impedance signal including a baseline signal component associated with a
fluid shift away from the thorax, the controller also coupled to the pacing therapy output module
for adjusting the rate of delivery of pacing stimuli based at least in part on the portion of the
thoracic impedance signal associated with the thoracic fluid shift.

21. (Amended) The system of claim 18, in which the rate [control module] controller further
includes a lowpass filter [module] coupled to the thoracic signal detection module.

22. (Amended) The system of claim 21, in which the lowpass filter obtains [a] the baseline
portion of the thoracic impedance signal that is associated with a fluid shift away from the heart.

29. (Amended) A cardiac rhythm management system, including:
first and second electrodes configured for association with a portion of a subject's thorax;
a thoracic signal detection module, coupled to the first and second electrodes;
thoracic test signal generator configured for association with the thorax for providing
energy to the thorax for detecting thoracic impedance;
third and fourth electrodes configured for association with a portion of a subject's heart;
a pacing therapy output module, coupled to the third and fourth electrodes; and
a pacing stimuli rate control module, coupled to the thoracic signal detection module for
receiving a thoracic impedance signal, the rate control module including a lowpass filter for
distinguishing a baseline thoracic fluid shift signal from another variation in thoracic impedance,
the rate control module also coupled to the pacing therapy output module for adjusting the rate of
delivery of pacing stimuli based at least in part on the thoracic fluid shift signal.

A4

30. (Amended) A cardiac rhythm management system, including:
means for detecting a thoracic impedance;
first and second electrodes, configured for association with a portion of a subject's heart;
a pacing therapy output module, coupled to the first and second electrodes; and
a pacing stimuli rate control module, coupled to the means for detecting thoracic
impedance and the pacing therapy output module, the rate control module adjusting a rate of
delivery of pacing stimuli based at least in part on a baseline portion of the thoracic impedance
associated with thoracic fluid shift away from the thorax.

Please enter new claims 31-35.

A7

31. (New) The method of claim 4, further including attenuating a high frequency component
of the thoracic impedance signal.

32. (New) The method of claim 4, further including detecting a motion of the subject and
providing the therapy to the subject's heart based at least in part on the detected motion of the
subject.

33. (New) The method of claim 4, further including detecting a breathing of the subject and
providing the therapy to the subject's heart based at least in part on the detected breathing.

34. (New) The method of claim 33, in which providing the therapy to the subject's heart
includes adjusting a rate of delivery of pacing stimuli based on frequency components of the
thoracic impedance associated with fluid shift away from the thorax and associated with the
subject's breathing.

35. (New) The method of claim 4, in which providing the therapy to the subject's heart includes providing a therapy from the group consisting essentially of:

An

- (a) increasing the subject's heart rate to a predetermined fixed value in response to an increase in detected thoracic impedance at a frequency associated with a fluid shift away from the thorax;
- (b) increasing the subject's heart rate by a predetermined fixed value in response to an increase in detected thoracic impedance at a frequency associated with a fluid shift away from the thorax;
- (c) adjusting an applied energy for modifying a heart rate or contractility in response to an increase in detected thoracic impedance at a frequency associated with a fluid shift away from the thorax; and
- (d) providing a drug to the subject in response to an increase in detected thoracic impedance at a frequency associated with fluid shift away from the thorax.

REMARKS

Applicant has reviewed the Office Action dated November 8, 2002, and the references cited therewith. Claims 2, 4, 5, 6, 8, 18, 21, 22, 29, and 30 are amended. Claim 1 is canceled. Claims 31-35 are added. As a result, claims 2-35 are now pending in this application.

§112 Rejection of the Claims

Claims 8, 21, 22, 25, 26 and 29 were rejected under 35 U.S.C. § 112, second paragraph, as allegedly indefinite.

The rejection asserts that claim 8 is unclear "because (a) and (b) appear to be identical." (See Office Action ¶ 1.) Applicant traverses. In claim 8, (a) recites increasing the subject's heart rate *to* a predetermined fixed value and, by contrast, (b) recites increasing the subject's heart rate *by* a predetermined fixed value. Because (a) and (b) are not identical, Applicant respectfully requests withdrawal of this rejection.

The rejection asserts that claim 21 lacks antecedent basis for "the rate control module." (See *id.*) Accordingly, Applicant has amended claim 21 to recite "the rate controller," for which antecedent basis exists in claim 18. Because "the rate controller" finds antecedent basis in claim